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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/626,646	07/25/2003	Jerry Wang	MR3003-56	1413

4586 7590 04/05/2005

ROSENBERG, KLEIN & LEE  
3458 ELLICOTT CENTER DRIVE-SUITE 101  
ELLICOTT CITY, MD 21043

EXAMINER
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HUYNH, KIM NGOC

ART UNIT	PAPER NUMBER
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2182

DATE MAILED: 04/05/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/626,646

Applicant(s)

WANG ET AL.

Examiner

Kim Huynh

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133): Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 25 July 2003.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-15 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 25 July 2003 is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-3, 5-10 and 13-1<sup>5</sup>~~8~~ are rejected under 35 U.S.C. 103(a) as obvious over Humlicek et al. (US 5,822,782) in view of Talagala et al. (US 6,742,081)

Claims 1-3, 9 and 10, Humlicek discloses an array configuration for multiple disk-array system containing at least one disk array 108, each array having at least one disk drive 1210 with an array configuration 122; said array configuration 122 comprising a disk sequence/function (230, Fig. 2, configuration ID), global information of the group (array) array quantity (number of disk drives) RAID level and location of error checking information in the group (210, col. 6, ll. 14-17) as part of the configuration information (col. 6, ll. 3-17).

Humlicek discloses the error checking information is parity information (col. 4, ll. 64-66) but does not specify it as checksum. Talagala discloses a sequential checksum for guarding against failure of the disk drive and also discloses checksum algorithm ranges from simple XOR computation to additive checksum to a CRC and is the most simple and common error detection scheme (Tatalaga, col. 7, ll. 53-62). It would have been obvious to one having ordinary skill in the art to realize that the

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configuration array of Humlicek would include a checksum value in order validate the configuration of the storage system without incurring overhead or size of the configuration table (Talagala, col. 11, l. 41 to col. 12, l. 13).

The method of testing the RAID configuration of Humicek during initialization process upon power on or reset to account for any changes to the configuration (col. 7, ll. 30-52) per the method as shown in Figs. 3-7, therefore the method of validating the configuration would be dictated by the configuration array above, which including steps of reading array configuration stored in page 70, acquiring a quantity of disk drives (array size), reading the array information related to the quantity of the disk drives record (known activated drives in each group, 232-236, including RAID level and number of disks, col. 6, ll. 12-18), and compare/calculate/numerate a quantity of the disk drive in the array (comparing to currently activated drives in each group) to update the configuration information of each group. The information used to determined by the physical connection (configuration ID or sequence/function) of each disk drive (array controller/type, channel, address of each disk, col. 5, ll. 35-67).

Claims 5, 7, 12, 14, the array configuration comprises the array type (unique ID of each disk identified in 230) relevant to recording the disk sequence or quantity of disk drive.

Claims 6, 8, 13 and 15, as different combination of limitations recited in claims 1 and 9 as discussed above and are rejected accordingly.

Claims 4 and 11 are are rejected under 35 U.S.C. 103(a) as obvious over Humlicek in view of Talagala above and further in view of Patel et al. (US 6,799,284).

Humlicke and Tagagala discloses all the limitations of claims 1 and 9 above except the checksum numerated from version and firmware revision of the disk drive. Patel discloses a disk array 200 having a re-parity block with header information including firmware version number (col. 3, ll. 53-67) in order to enable version update/reconfigure of the system without downtime and the checksum is used to ensure that accidental corruption of the bitmap version number is not misinterpreted as an actual intended change in the version number (col. 5, ll. 15-18). It would have been obvious to one having ordinary skill in the art include the firmware version as part of the error checking information of Humlicek in order to realize the benefits disclosed by Patel as discussed above.

### ***Conclusion***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Wilner (US 6327672) and Islam (US 5,950,230) disclose various methods for managing the configuration of disk drive array.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kim Huynh whose telephone number is (571) 272-4147272-4147.

The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

A handwritten signature in black ink, appearing to read 'Kim Huynh', with a long horizontal stroke extending to the right.

Kim Huynh  
Primary Examiner  
Art Unit 2182

KH  
4/2/05